



wherein R: is selected from the group consisting of hydrocarbyl of 1 to 4 carbon atoms; x: 1~10.

5. A secondary battery as claimed in claim 1, wherein said the crosslinked gel-type polyacrylonitrile (PAN) electrolytes to which can add below 15% monomers of either acrylic acid or acrylic acid ester through copolymerizing to adhesive.

6. A secondary battery as claimed in claim 1, wherein said the polyvinylidene fluoride (PVdF) polymers which molecule weight is over 5000, or PVdF containing over 80% PVdF-co-HFP polymer to enhance the mechanical strength.

7. A secondary battery as claimed in claim 1, wherein said the crosslinked composite gel-type polymer electrolyte membrane can be added below 20% of PEO, which is soft chain polymers.

8. A secondary battery as claimed in claim 1, wherein said the crosslinked composite gel-type polymer electrolyte membrane can be added inorganically porous fillers.

9. A secondary battery as claimed in claim 1, wherein said liquid electrolytes are made from using a nonaqueous solvent to dissolve alkaline or alkaline earth metallic salts.

10. A secondary battery as claimed in claim 9, wherein said salts to make liquid electrolytes are LiBF_4 , LiClO_4 , LiPF_6 , LiSbF_6 , LiI , LiBr , LiCl , LiAlCl_4 , LiSCN , LiAsF_6 , LiCF_3SO_3 , $\text{Li}(\text{CF}_3\text{SO}_2)_2\text{N}$, $\text{Li}(\text{C}_2\text{F}_5\text{SO}_2)_2\text{N}$, $\text{Li}(\text{CF}_3\text{SO}_2)_3\text{C}$ or $\text{Li}(\text{C}_2\text{F}_5\text{SO}_2)_3\text{C}$.

11. A secondary battery as claimed in claim 1, wherein said liquid electrolytes, its solvents are cyclic carbonate,

acyclic carbonate, amide solvent, lactone solvent or ester solvent.

12. A secondary battery as claimed in claim 11, wherein said the liquid electrolyte solvents are propylene carbonate, ethylene carbonate, dimethyl carbonate, diethyl carbonate, butyl carbonate, DME, DMF, DMSO, γ -butyrolactone or N-methyl pyrrolidone.

13. A secondary battery as claimed in claim 1, wherein said the positive electrode is made of the lithium compounds or conductive polymers.

14. A secondary battery as claimed in claim 13, wherein said the lithium compounds are LiCoO_2 , LiMnO_2 , LiMn_2O_4 or LiNiO_2 .

15. A secondary battery as claimed in claim 13, wherein said the conductive polymers of the positive electrode are organosulfur, organosulfide polymer, polyaniline or polypyrrole.

16. A secondary battery as claimed in claim 15, wherein said the conductivity polymers of the positive electrode are polymerized by chemical or electrochemical methods, or formed as complexes of conductive polymer and carbon black by chemically polymerization based on surface of electric carbon black or graphite.

17. A secondary battery as claimed in claim 15, wherein said the conductivity polymers of the positive electrode are doped or undoped polymers.

18. A secondary battery as claimed in claim 1, wherein said the negative electrode is made of the lithium metal, alloy lithium or dopants with lithium.

19. A secondary battery as claimed in claim 18, wherein said the dopants with lithium are graphite or irregularly crystal carbon.

* * * * *